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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,762	01/21/2004	Janet Bee Yin Chua	70040065-1	2866

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EXAMINER

RICHARDS, N DREW

ART UNIT PAPER NUMBER

2815

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,762

Applicant(s)

CHUA ET AL.

Examiner

N. Drew Richards

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/7/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Appeal Brief

1. In view of the Appeal Brief filed on 10/20/05, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

A handwritten signature in black ink, consisting of a stylized 'K' followed by a horizontal line extending to the right.

**KENNETH PARKER
SUPERVISORY PATENT EXAMINER**

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odaki et al. (US 2001/0050371 A1) in view of Yocom et al. (US 2003/0222268 A1).

With regard to claim 1, Odaki et al. teach in figures 1A-6, a device for emitting output light, the device comprising:

- a semiconductor chip 1 that emits first light of a first peak wavelength in a 481-520 nm range (LED 1 is taught as emitting light of blue to green in paragraph [0012] for example, as is well known in the art the wavelength of blue-green light is in the claimed range); and
- a wavelength-shifting region 4 optically to the semiconductor chip 1 to receive the first light, the wavelength-shifting region including a phosphor material having a property to convert some of the first light to second light of a second peak wavelength in a red wavelength range (see abstract which teaches a red phosphor), the first light and the second light being components of the output light.

Odaki et al. do not teach the phosphor material including a group IIB element Selenide-based phosphor material activated by at least one element selected from Copper, Chlorine, Fluorine, Bromine and Silver.

Yocom et al. teach a phosphor mixture that can be applied to an LED to achieve a continuous broad emission wavelength. Yocom et al. teach in paragraph [0023] that group IIB element Selenide-based phosphor material activated by at least one element selected from Copper, Chlorine, Fluorine, Bromine and Silver are particularly preferred. In paragraph [0024] that the phosphor mixture can be used as a thin layer over an LED.

At the time of the invention it would have been obvious to one of ordinary skill in the art to use the phosphor mixture of Yocom et al. on the light-emitting diode of Odaki et al. The motivation for doing so is to allow the LED configuration of Odaki et al. figures 1A-6 to emit over a continuous broad wavelength. Thus, it would have been obvious to combine Odaki et al. and Yocom et al. to obtain the invention of claim 1.

With regard to claim 2, the Group IIB Selenide-based phosphor material of the wavelength-shifting region as taught by Yocom et al. includes Zinc Selenide.

With regard to claim 3, the Group IIB Selenide-based phosphor material of the wavelength-shifting region as taught by Yocom et al. includes Zinc Selenide activated by copper.

With regard to claim 4, the Group IIB Selenide-based phosphor material of the wavelength-shifting region as taught by Yocom et al. includes Cadmium Selenide.

With regard to claim 5, the semiconductor chip 1 of Odaki et al. is a light emitting diode die that can generate the first light of the first peak wavelength.

With regard to claim 6, as seen in figure 3 for example, the wavelength-shifting region 4 is part of a lamp coupled to the semiconductor chip 1. The phosphor

containing layer 4 along with sealing member 20, cup 3 and lead frame 8 constitute a “lamp” that is coupled to the semiconductor chip 1.

With regard to claim 7, as seen in figure 2 for example, the wavelength-shifting region 4 is a lamp coupled to the semiconductor chip.

With regard to claim 8, Odaki et al. teach in figures 1A-6, a device for emitting output light, the device comprising:

- a semiconductor die 1 that emits first light of a first peak wavelength in a 481-520 nm range (LED 1 is taught as emitting light of blue to green in paragraph [0012] for example, as is well known in the art the wavelength of blue-green light is in the claimed range); and
- a phosphor containing medium 4 optically to the semiconductor die 1 to receive the first light, the phosphor containing medium including a phosphor material having a property to convert some of the first light to second light of a second peak wavelength in a red wavelength range (see abstract which teaches a red phosphor), the first light and the second light being components of the output light.

Odaki et al. do not teach the phosphor containing medium including a group IIB element Selenide-based phosphor material activated by at least one element selected from Copper, Chlorine, Fluorine, Bromine and Silver.

Yocom et al. teach a phosphor mixture that can be applied to an LED to achieve a continuous broad emission wavelength. Yocom et al. teach in paragraph [0023] that

group IIB element Selenide-based phosphor material activated by at least one element selected from Copper, Chlorine, Fluorine, Bromine and Silver are particularly preferred. In paragraph [0024] that the phosphor mixture can be used as a thin layer over an LED.

At the time of the invention it would have been obvious to one of ordinary skill in the art to use the phosphor mixture of Yocom et al. on the light-emitting diode of Odaki et al. The motivation for doing so is to allow the LED configuration of Odaki et al. figures 1A-6 to emit over a continuous broad wavelength. Thus, it would have been obvious to combine Odaki et al. and Yocom et al. to obtain the invention of claim 8.

With regard to claim 9, the Group IIB Selenide-based phosphor material of the phosphor containing medium as taught by Yocom et al. includes Zinc Selenide.

With regard to claim 10, the Group IIB Selenide-based phosphor material of the phosphor containing medium as taught by Yocom et al. includes Zinc Selenide activated by copper.

With regard to claim 11, the Group IIB Selenide-based phosphor material of the phosphor containing medium as taught by Yocom et al. includes Cadmium Selenide.

With regard to claim 12, the semiconductor die 1 of Odaki et al. is a light emitting diode die.

With regard to claim 13, as seen in figure 3 for example, the phosphor containing medium 4 is part of a lamp coupled to the semiconductor die 1. The phosphor containing layer 4 along with sealing member 20, cup 3 and lead frame 8 constitute a "lamp" that is coupled to the semiconductor die 1.

With regard to claim 14, as seen in figure 2 for example, the phosphor containing medium 4 is a lamp coupled to the semiconductor die.

With regard to claim 15, Odaki et al. with Yocom et al. teach the claimed method including generating first light of the first wavelength, including emitting the first light out of the semiconductor die, receiving the first light emitted out of the semiconductor die, converting some of the first light to second light in a red peak wavelength using the claimed group IIB element selenide based phosphor, and emitting the first and second light as components of the output light.

With regard to claim 16, the Group IIB Selenide-based phosphor material as taught by Yocom et al. includes Zinc Selenide.

With regard to claim 17, the Group IIB Selenide-based phosphor material as taught by Yocom et al. includes Zinc Selenide activated by copper.

With regard to claim 18, the Group IIB Selenide-based phosphor material as taught by Yocom et al. includes Cadmium Selenide.

With regard to claim 19, the generating includes generating the first light at a light emitting diode die 1.

With regard to claim 20, the light emitting diode die is configured to generate the first light such that the first peak wavelength is within a blue-green region of the visible light spectrum.

Response to Arguments

4. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on Monday-Friday 9:00-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'N. Drew Richards', with a long, sweeping flourish extending to the right.

N. Drew Richards
AU 2815